BEFORE THE
COUNCIL OF THE CITY OF NEW ORLEANS

APPLICATION OF ENTERGY NEW ORLEANS, INC. FOR APPROVAL TO CONSTRUCT NEW ORLEANS POWER STATION AND REQUEST FOR COST RECOVERY AND TIMELY RELIEF	**)** **)** **)** **)** **)**	**DOCKET NO. UD 16-02**

PRE-FILED SUPPLEMENTAL TESTIMONY

OF

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ON BEHALF OF

DEEP SOUTH CENTER FOR ENVIRONMENTAL JUSTICE, ALLIANCE FOR AFFORDABLE ENERGY, 350 LOUISIANA – NEW ORLEANS, AND SIERRA CLUB

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I. Introduction

Q1. Please state your name and occupation.

A. My name is Beverly Wright. I am the Executive Director of the Deep South Center for Environmental Justice.

Q2. Please describe the Deep South Center for Environmental Justice.

A. The Deep South Center for Environmental Justice is a nonprofit organization in New Orleans, Louisiana founded in 1992 that conducts research and provides educational and policymaking opportunities for communities, scientific researchers, and policymakers to promote the rights of all people to be free from environmental harm as it impacts health, jobs, housing, education, and quality of life.

II. Summary of Prior Testimony

Q3. Please provide a brief summary of your January 6, 2017 Direct Testimony.

A. In my direct testimony, I presented an environmental justice analysis of the racially discriminatory effects of Entergy's proposed New Orleans Power Station, a gas power plant. For this analysis, I examined the following:

- whether there were meaningful opportunities for public notice and participation in the Integrated Resource Plan ("IRP") prepared by Entergy New Orleans, Inc.;
- public response to the IRP and Entergy's first application for City Council approval of the proposed gas power plant;
- Entergy's decision to select a site for the proposed gas power plant without any criteria or analysis to consider the impact of a gas power plant in close geographic proximity to

neighborhoods and schools, where residents are predominantly African American and Vietnamese American; and

- the steps taken by Entergy in its applications for environmental permits to avoid assessment of the negative impacts of the gas power plant on the health, safety, environment, and quality of life of the residents living nearby the Michoud site.

Based on this analysis, I found that the decisions and circumstances leading up to and including Entergy's first application for City Council approval of the proposed gas power plant follow the pattern of systemic environmental racism that disproportionately burdens communities of color with toxic industrial pollution and hazards. I concluded that, if approved, the proposed Entergy gas power plant would have the racially discriminatory effect of burdening predominantly African American and Vietnamese American residents with toxic air pollution and other environmental hazards. I, therefore, recommended that the City Council of New Orleans deny the application by Entergy for the proposed gas power plant.

Q4. In regards to Entergy's second application for the proposed gas plant, do you have any changes to the conclusions you reached in your Direct Testimony?

A. I have no changes to make to my Direct Testimony. The racially disproportionate impacts of the proposed Entergy gas power plant and the woefully inadequate process for public input that excluded the participation of people who would be most impacted by the proposed power plant have not been addressed, much less remedied, in the second application filed by Entergy. Entergy's second application seeks Council approval of either a 226 MW combustion turbine gas plant or reciprocating gas engines with a capacity of 128 MW.

III. Purpose of Supplemental Testimony

Q5. What is the purpose of your Supplemental Testimony?

A. In reviewing Entergy's second application for the New Orleans Power Station and related information, I have determined there are significant problems regarding (1) the fairness of this utility docket proceeding being undermined by the conflicting roles of the New Orleans City Council Consultants to recommend the City Council agree to Entergy developing a new power plant on potential sites in East New Orleans and also to advise the Council on whether the proposed Entergy gas power plant is in the public interest; (2) the false statement made by Entergy which resulted in there being no environmental assessment of its industrial impact on nearby residential neighborhoods and schools in East New Orleans, where residents are predominantly African American and Vietnamese American; and (3) Entergy's repeated overestimations of customer need for the proposed gas power plant. These problems compound those raised in my prior Direct Testimony. They constitute additional grounds for the City Council to deny Entergy's application for the proposed gas power plant.

IV. The Conflicting Roles of the New Orleans City Council Consultants Undermine the Fairness of This Proceeding

Q6. What is the problem regarding the fairness of the process to determine whether the Entergy gas power plant is in the public interest?

A. The problem is that the New Orleans City Council Consultants, who are parties to this utility docket proceeding and have the responsibility of advising Councilmembers on whether or not the proposed Entergy gas power plant is in the public interest, are the same individuals who also recommended the City Council agree to Entergy building a new power plant in New Orleans

with the Michoud site as a potential location for the power plant. The City Council followed this recommendation when it issued Resolution R-15-524 by majority vote, which states as follows:

> WHEREAS, ENO [Entergy New Orleans, Inc.] will use reasonable diligent efforts to **pursue the development of at least 120 MW of new-build peak generation capacity within the City of New Orleans**. As part of this commitment, **ENO will fully evaluate Michoud or Paterson, along with any other appropriate sites in the City of New Orleans, as the potential site for a combustion turbine ("CT") or other peaking unit** to be owned by ENO, or by a third party with an agreed-to PPA to ENO. This evaluation will take into consideration, among other material considerations, the results of the Michoud site analysis that was completed in connection with the Summer 2014 Request for Proposal; and
>
> WHEREAS, **ENO commits to use diligent efforts to have at least one future generation facility located in the City of New Orleans** . . . ."

New Orleans City Council Resolution R-15-524, November 5, 2015 [emphasis added].

The New Orleans City Council Consultants advised the City Council to enter into this agreement with Entergy and issue Resolution R-15-524 more than one year prior to Entergy's submission of the controversial Integrated Resource Plan on February 1, 2016. In the IRP, Entergy argues in favor of constructing a new gas power plant. The Council's agreement and resolution occurred before utility forecasts, analyses, modeling, and data reviews required for the IRP could be completed. Thus, it is appears that there was a separate process outside of Council regulations, public notice, and Council utility dockets for the consultants to work out with Entergy the specific features – "at least 120 MW of new-build peak generation capacity" – and potential sites – "Michoud or Paterson" in East New Orleans – for the construction of a new power plant.

On the advice of the New Orleans City Council Consultants, the City Council issued two subsequent resolutions establishing a period of intervention and procedural requirements for the consideration of Entergy's gas power plant application (Resolution R-16-332) and revising the

procedural schedule for this application (Resolution R-16-506). Although each resolution presents a chronology of events leading up to Entergy's application, each omits any reference to the City Council's Resolution R-15-524, in which the City Council agrees to Entergy pursuing the development of a new gas power plant in New Orleans. These resolutions, prepared by the New Orleans City Council Consultants, leave the public in the dark as to the City Council's prior agreement with Entergy to build a new gas power plant.

The New Orleans City Council Resolution R-16-506 indicates that the utility consultants disagree with the proposed Entergy power plant having a capacity that is larger than 194 MW. This would be consistent with their recommendation for a power plant with a capacity of at least 120 MW.

Furthermore, it is worth noting that the New Orleans City Council Consultants drafted a resolution (Resolution R-16-25) for the City Council to approve the 2015 Integrated Resource Plan ("IRP"), which concludes that a new gas power plant is needed in the city of New Orleans. The consultants presented this draft resolution at the public meeting of the Council's Utility, Cable, Telecommunications and Technology ("UCTT") Committee on December 14, 2016. The IRP was the subject of significant criticism by some of the Intervenors in this proceeding as well as every person who gave oral comments at the June 15, 2016 public hearing on the Integrated Resource Plan, which I analyzed in my prior Direct Testimony. However, during the UCTT Committee meeting, the New Orleans City Council Consultants vocally opposed the suggestion made by representatives of the Alliance for Affordable Energy to change the word "approved" to "accepted" in the draft resolution with the meaning that the City Council accepts the IRP without judgment in favor of or otherwise affirming the IRP. The City Council voted to defer the draft

resolution until its next meeting in January 2017. After hearing from constituents who opposed approval of the IRP, the City Council unanimously voted to change the language from "approved" to "accepted" in Resolution R-17-100 that was passed on February 23, 2017.

As I explained in my prior Direct Testimony, my work for environmental justice has involved developing institutional standards to ensure effective and meaningful public participation in governmental decisions on matters involving proposed industrial developments and other environmental concerns. These standards emphasize fairness and unbiased decision-making. A scenario in which a decision-maker or an official advisor to a decision-maker is also a proponent of a proposed development would be an anathema to these standards.

I respect the authority of the City Council to determine whether or not Entergy's gas plant application is in the public interest. However, the actions taken by the New Orleans City Council Consultants taint this utility docket proceeding. The record shows that the consultants, as parties to this proceeding, have the privilege to advise the City Council on whether it is in the public interest to allow Entergy to develop a new gas power plant, but such advice is compromised by the consultants' recommendation that the City Council agree to this development prior to any public review. The conflicting roles played by the Council's utility consultants undermine the guarantee of a fair process that New Orleans residents deserve. Their conflicting roles warrant examination of whether this utility docket proceeding assures due process for all parties and the public.

V. Entergy's False Statement Resulted in No Environmental Assessment of Its Industrial Impact on Nearby Neighborhoods and Schools

Q7. Please explain the false statement made by Entergy that resulted in there being no environmental assessment of industrial impact on nearby residential neighborhoods and schools.

A. Entergy's first Part 70 air permit application for the Michoud power plant in 2004 required an Environmental Assessment Statement ("EAS"). In the EAS, Entergy is obligated to identify the impacts of its power plant on the environment, any alternatives to the power plant, and measures to avoid adverse environmental effects among other assessments. In addition, the Environmental Assessment Statement ("EAS") requires Entergy to answer the following question: "Does prospective site pose potential health risk as defined by proximity to: residential areas, schools, hospitals, etc." Entergy provided the following false statement to this question:

> . . . . There are no nearby residential areas.
>
> The topographic map further illustrates there are no schools, hospitals, or other public places in the vicinity of the plant site.

Entergy New Orleans, Inc., Appendix E – *Revised/Expanded "IT Questions" Decision: Entergy Michoud 2 Repowering Project*, Part 70 Operating Permit, Michoud Electric Generating Plant, LDEQ Permit No. 2140-00014-VO, Oct. 12, 2004, Activity No. PER19960001, EDMS Doc. Nos. 24122261, 2478135. Entergy's full Environmental Assessment Statement is attached hereto as Exhibit 1.

At the time Entergy submitted its Environmental Assessment Statement to the Louisiana Department of Environmental Quality (LDEQ) in 2004 and continuing today, predominantly African American and Vietnamese American families live and attend schools in close geographic

proximity to the Michoud site, where Entergy now proposes to build a gas power plant. As a result of Entergy's false statement, there has been no environmental assessment of the Michoud power plant vis-à-vis nearby neighborhoods. Furthermore, and as explained in my prior Direct Testimony, Entergy intends to apply for a renewal and modification of the Part 70 air permit for the proposed gas power plant that does not require an Environmental Assessment Statement.

From the record, it appears that Entergy's false statement was overlooked by the LDEQ when it issued the initial Part 70 air permit for the Michoud Electric Generating Plant on October 12, 2004 (Permit No. 2140-000140-V0). However, the LDEQ's recent public notice of the proposed Part 70 renewal and modification permit for the proposed Entergy gas power plant (Permit No. 2140-000140-V5) includes a map of the area surrounding the Michoud site. A close-up view of this map shows the residential neighborhoods and two schools located within two miles of the Michoud site. The LDEQ map is attached hereto as Exhibit 2.

The Environmental Assessment Statement is an important requirement that is supportive of environmental justice goals. However, Entergy's egregious decision to not comply with this requirement by submitting a false statement in 2004 and not correcting the EAS in its recent application for a Part 70 air permit has denied the rights of nearby residents to information about the impacts of Entergy's former and proposed power plants on their health, safety, environment, and quality of life. The residents have also been denied the opportunity for mitigating, if not eliminating, any of the adverse impacts that would be revealed by a factual and accurate Environmental Assessment Statement.

VI. Entergy Has Repeatedly Overestimated Customer Need for the Proposed Gas Plant

Q8. Please explain Entergy's repeated overestimations of customer need for the gas plant.

A. Entergy requested a suspension of this utility docket proceeding in order to consider new information showing customer need for electricity in the future is lower than Entergy's previous forecast. Purportedly it was based on this new information that Entergy filed the second application, which presents two options for a gas power plant. The Deep South Center for Environmental Justice, the Sierra Club, and the Alliance for Affordable Energy jointly requested that Entergy publicly disclose the new information, which it did.

In my analysis of Entergy's new forecast of decreased customer need for electricity and its prior forecasts of customer need, I find that there is a pattern of repeated overestimations without explanation. For example, on February 17, 2017, Entergy provided parties to this utility docket proceeding its revised forecast showing customers in New Orleans will need 1,282 MW of electricity in the year 2030. This is a drop of 54 MW in customer need from Entergy's prior forecast of 1,336 MW in its initial application for City Council approval of the gas power plant that was filed on June 20, 2015. In turn, Entergy's forecast of 1,336 MW is another drop in customer need, this time, by 65 MW from its forecast in the Integrated Resource Plan filed on February 1, 2015. For each of these substantial decreases in customer need for electricity, Entergy has not explained or otherwise disclosed what change(s) contributed to the decreasing customer need. The Deep South Center for Environmental Justice created the graph, *Entergy's Decreasing Forecasts of Customer Need for Electricity in New Orleans, LA*, as a visual representation of Entergy's forecast data compiled from Entergy's revised forecast issued earlier

this year, initial gas plant application to the City Council in 2016 (Direct Testimony of Seth E. Cureington, page 18, Table 2), and Integrated Resource Plan in 2015 (page 79, Table 2). The graph is attached hereto as Exhibit 3.

Q9. How does Entergy's repeated overestimation of customer need factor in your environmental justice analysis?

A. Entergy's repeated overestimation of customer need for electricity has a direct bearing on my environmental justice analysis. I must emphasize the point that Entergy uses its forecasts of customer need to claim there is justification for building a new gas plant near predominantly African American and Vietnamese American families residing in East New Orleans. Entergy is asking the City Council to approve a project for which, by Entergy's own admission, there is decreasing need and increasing alternatives. Such approval would result in racially disproportionate pollution burdens and other industrial hazards, including the risk of gas explosions, as well as accelerated land subsidence and impaired levee structure as a result of Entergy's past and proposed groundwater use, which increase flood risks.

As a starting point, typical environmental assessments require proof that there is (1) a need for the project, (2) no better alternative to the project, and (3) no alternative site for the project. Entergy fails to meet this basic burden of proof.

Furthermore, the repeated overestimations of customer need along with the failure to disclose the rationale for the decreasing forecasts indicate that Entergy is either incapable of or unwilling to properly calculate how much electricity will be needed in New Orleans. This puts the entire city at risk of making an unwise investment.

The repeated overestimations of customer need without explanation is arbitrary. One can infer that Entergy's goal may not be meeting customer need for electricity, but, instead, meeting a bottom line for profit that is currently estimated to be in excess of $20 million for either gas power plant option in Entergy's second application.

Q10. Does this conclude your testimony?

A. Yes.

Exhibit 1. Entergy New Orleans, Inc., Environmental Assessment Statement, August 5, 2004 (*Revised/Expanded "IT Questions" Decision: Entergy Michoud 2 Repowering Project*, Part 70 Operating Permit, Michoud Electric Generating Plant – Entergy New Orleans, Inc., LDEQ Permit No. 2140-00014-VO, Oct. 12, 2004, Activity No. PER19960001, EDMS Doc. Nos. 24122261, 2478135)

Revised Expanded "IT Decision" Questions
Entergy
MICHOUD 2 REPOWERING PROJECT

To demonstrate that the environmental impacts resulting from the Michoud 2 Repowering have been considered, the following five "Environmental Impact Questions" have been addressed.

Project Description:
Entergy New Orleans, Inc. (Entergy) is a major energy company, which produces and distributes electric power, natural gas, and related services. In New Orleans, Entergy has served residential, commercial, governmental, and industrial customers for more than 75 years. Electric energy is provided to approximately 190,300 customers in New Orleans, with 150,589 receiving gas as well. Entergy alone employs nearly 2,500 people in New Orleans and has the capacity to produce more than 1,000 megawatts of electrical energy within the city.

Entergy currently operates the Michoud Steam Electric Station (Michoud Plant) which is located on 3601 Paris Road in New Orleans, Louisiana. Michoud Plant is currently capable of producing 918 megawatts of electricity from its three units. Entergy plans to improve energy production at Michoud by completing a gas turbine based re-powering project.

Entergy proposes to complete the re-powering project in two separate phases. The first phase will consist of the installation of two combustion turbine generators (CTGs) operating in simple-cycle mode and the imposition of an enforceable operating limit on the existing Michoud Unit 2 boiler. Following installation/operation of the CTGs in simple-cycle mode, the second phase will be constructed consisting of two supplemental gas fired heat recovery steam generators (HRSGs) to enable combined-cycle operation. The commencement of combined-cycle operations will be accompanied by the shutdown of the Michoud Unit 2 boiler.

This ultimate shutdown of Michoud Unit 2 will result in a net reduction of overall emissions of criteria pollutants. The net effect on emissions from Phase I and Phase II of the re-powering project (on a future potential to current actual basis) are as follows:

Emissions	Phase I	Phase II (Total)
Nitrogen Oxides (NOx)	+18.9 tons per year	-467.1 tons per year
Carbon Dioxide (CO)	+23.3 tons per year	+ 66.9 tons per year
Particulate Matter (PM10)	+19.9 tons per year	+ 60.5 tons per year
Sulfur Dioxide (SO_2)	+ 2.6 tons per year	+ 6.5 tons per year
Volatile Org. Compounds (VOC)	+ 2.0 tons per year	+ 14.1 tons per year

The proposed project will generate approximately 500 megawatts of electricity when completely operational in combined-cycle mode. Equipment to be installed includes two natural gas fired combustion turbine generators, two heat recovery steam generators (HRSGs) with gas fired duct burners, and other ancillary equipment required for the operation of the facility.

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The proposed project will have many benefits to the local industry and to the community and will not result in adverse environmental impacts. The main beneficial feature for the Michoud Facility is installation of new electric generating equipment that is more efficient, producing more electrical power per unit of fuel.

It is anticipated that the re-powered operations will have no adverse environmental impact. All air emissions will be within National Ambient Air Quality Standards (NAAQS) and Prevention of Significant Deterioration (PSD) incremental growth allowances. The facility will comply with all applicable state and federal air quality regulations.

The facility currently generates wastewater and a small quantity of sanitary sewage. The installation of the proposed re-powering equipment is not expected to cause any significant change in the generation of wastewater and sanitary sewage. The proposed units will utilize only natural gas as a fuel and electricity will continue as the primary product of the facility. Only minor quantities of chemicals will be used on-site – primarily for water treatment and maintenance activities.

No adverse transportation issues are associated with the existing facility. The natural gas fuel is currently supplied via pipeline and no chemical products are shipped from the facility. This will not change due to the proposed re-powering project. Water treatment and other maintenance associated chemicals are currently delivered by truck without adverse impact to the surrounding area. The addition of the re-powering project will not result in significant changes to the current level or patterns of vehicular traffic and there will be no long-term effects on traffic.

It is not anticipated that the Michoud re-powering project will have any adverse impacts to the environment. In an attempt to quantify any impacts a formal response to each of the Revised Expanded "IT Decision" Questions as contained on the Louisiana Department of Environmental Quality (LDEQ) website and as outlined in the LDEQ "Permitting Procedures Manual" is provided below. We believe these responses are comprehensive in nature; however, Entergy will provide any additional information deemed necessary upon request from the LDEQ.

The re-powering project at Michoud plant has been determined to be the best overall project for electric capacity augmentation in the Greater New Orleans area from both an economic and environmental perspective. The project is vital to the continued reliable supply of electric power to this area.

I. <u>Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?</u>

Yes. The potential and real adverse effects of the proposed facility have been avoided to the maximum extent possible.

As discussed below, the re-powering project is not anticipated to have any adverse environmental impacts. Entergy has engineered the proposed re-powering project and facility operations such that environmental impacts will be minimized. The proposed fuel

efficient re-powering project will replace an older, less efficient power generation unit that also burns No.6 fuel oil.

In Phase I the high efficiency turbines will be installed to meet peak electrical demand needs. In Phase II the installation of the HRSGs will improve the fuel efficiency of the facility as a whole, boost the electric generation capacity to the required level, and improve reliability of electric supply in the area.

I.A. What are the potential environmental impacts of the permittee's proposed facility?

I.A.1 Waste Generation and Control

The proposed CTGs, HRSGs, and ancillary equipment are designed to meet or exceed all existing environmental regulations. Adverse environmental impacts have been avoided to the maximum extent possible. No solid or hazardous wastes will be disposed of on-site.

I.A.2 Air

The proposed Michoud re-powering project will result in the replacement of an older, less efficient boiler/steam power generation system with a fuel efficient turbine/steam power generation system. The net result will be a reduction in emissions of most criteria air pollutants. As a result the net impacts due to air emissions from the proposed project are minimal and will not cause any adverse environmental impacts.

The two proposed CTG/HRSG trains will emit only those substances associated with burning of clean fuel (*i.e.*, natural gas) including carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (shown as PM_{10}), sulfur dioxide (SO_2), sulfuric acid mist (H_2SO_4) and volatile organic compounds (VOCs).

Cooling will be accomplished using two Wet Surface Air Cooler (WSAC) units. The WSACs are essentially an air cooled tube heat exchanger with supplemental water spray to enhance cooling. The WSACS have inherently low particulate emissions since they are fundamentally different than a direct contact cooling tower. The facility will also have minor emissions associated with cleaning and maintenance activities.

The emissions from the proposed project are subject to both National Ambient Air Quality Standards (NAAQS) and the Prevention of Significant Deterioration (PSD) rules. The NAAQS establish both primary standards designed to protect human health and secondary standards designed to protect public welfare. The primary NAAQS establish concentrations of certain criteria pollutants that can exist in the

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ambient air without causing adverse health impacts. The standards are set to provide an ample margin of safety and consider the cumulative impacts from emissions from throughout the area, including those from industrial facilities as well as area sources such as motor vehicles.

The PSD program extends even further protection to ambient air. The PSD rules are applicable for all criteria pollutants in areas that already have ambient air quality better than required by the NAAQS. These rules were designed to keep such "clean" air areas from backsliding into nonattainment with the NAAQS. The PSD rules allow only limited industrial growth in such "clean" air areas. They provide a ceiling on how much additional emissions can be tolerated through setting PSD "increments" which are small allowable additions to the baseline clean ambient air levels that already existed when the PSD rules for each criteria pollutant were established. Thus, the PSD rules do not allow ambient emissions in an area to rise even up to the NAAQS levels, which, as discussed above, have been determined to be protective of human health with an adequate margin of safety.

In addition to providing for only incremental increases in ambient concentrations (which fall well below NAAQS allowable health based levels) the PSD rules also require application of Best Available Control Technology (commonly referred to as "BACT"). In seeking a PSD permit, Entergy has evaluated potentially available pollution control technologies among competing alternatives to select BACT. In conducting this review, a "top down" approach has been used. Under this approach where the available technology that results in the lowest emissions is selected first and then can only be rejected as BACT only if other environmental, energy or economic considerations indicate that it is not feasible. The BACT review for this permit is contained in Section 3.0 of the air permit application.

Orleans Parish is in compliance with all NAAQS. This means that the PSD rules apply to all criteria pollutants in Orleans Parish. The PSD rules apply to emissions of total suspended particulate matter, fine particulate matter (PM_{10}), nitrogen oxides (NO_x), sulfur dioxide (SO_2) sulfuric acid mist (H_2SO_4), lead, volatile organic compounds (VOCs) and carbon monoxide (CO). These rules will not allow new industry if certain incremental ambient air concentration increases exceed the established levels for each of these criteria pollutants.

Projected emissions of NO_x and PM_{10} from the proposed project have been modeled for ambient air impact. At the time this was done, these were the only criteria pollutants that were expected to be emitted in significant quantities. More recently an enforceable condition was added that will restrict operation of Michoud Unit 2 boiler during Phase I.

Consequently, only PM_{10} emissions are now expected to be emitted in significant quantities. Nevertheless, the ambient modeling has demonstrated that the PSD increments as well as the NAAQS standards will not be exceeded. Thus Entergy has ensured that the air in Orleans Parish and the surrounding area will remain clean with no significant air quality deterioration as a result of this project.

In addition to meeting the requirements of the PSD program, the two CTG/HRSG trains will be subject to stringent New Source Performance Standards under 40 CFR Part 60 pertaining to steam generating units and to stationary gas turbines. These rules impose emission controls reflecting the best technology currently available to new units. The rules require initial stack tests after start up to verify that the emissions are within permit limits as well as continuous monitoring of several parameters to ensure that the units will be properly operated at all times. These requirements will be enforced through inclusion in a Clean Air Act Title V operating permit that will require prompt reports of any permit deviation, semiannual compliance reports, and annual compliance certifications.

I.A.3 Solid Waste

Only small quantities of solid and hazardous waste will be generated at the Michoud facility. The facility will continue to be classified as a "conditionally exempt small quantity generator" after completion of the re-powering project. All waste generated will be collected and disposed of commercially off-site in accordance with federal and state solid and hazardous waste regulations. There will be no treatment, storage, or disposal of hazardous waste at the site.

I.A.4 Water

There are currently 4 permitted wastewater outfalls located at the Michoud plant. These outfalls will not be revised to discharge any new types of wastewater as a result of this project.

Two Wet Surface Air Cooler (WSAC) units are proposed to provide additional cooling capacity. The WSACs are essentially air cooled tube heat exchangers with supplemental water spray to enhance cooling. The WSACS have inherently low particulate emissions and water usage since they are fundamentally different than a direct contact cooling tower. Existing cooling systems may receive a small heat load increase.

There is no anticipated impact on the surrounding water resources as a result of the proposed project.

I.A.5 Soil, Food, and Additional Impacts

The Michoud Power facility will not adversely impact the geology, topography, sensitive soils/vegetation, visibility/opacity, or Class I areas.

I.A.5.i. Source Related Growth

The Michoud Plant is located in New Orleans and Orleans Parish. Construction of the proposed project will employ numerous construction workers. It is anticipated that these short-term construction workers will come from the existing local workers pool. The facility will not increase permanent workers as a result of the project. There is no anticipated air quality impact attributed to residential growth as a result of the project.

I.A.5.ii. Sensitive Soils and Vegetation

The Michoud Plant does not generate waste that will leach into soils and affect shallow groundwater. Process operations currently do not cause the destruction of important vegetation or have any impacts on forested lands. The proposed project is not expected to generate waste that will leach into soils and affect shallow groundwater.

As a result of ambient air dispersion modeling conducted for the project, air emissions are not anticipated to adversely impact soil and vegetation in the area.

I.A.5.iii. Visibility/Opacity

The combustion sources will be fired with clean-burning natural gas ultimately replacing a unit capable of burning No.6 fuel oil. The resulting emissions of particulate matter and sulfur oxides will be minimized. Good combustion practices and Best Available Control Technology will be used to control NO_x and PM_{10} emissions from proposed emission sources. Proper precautions will be taken to minimize airborne dust emissions during project construction activities. Due to the practices described, the proposed facilities should have no effect on area visibility.

I.A.5.iv. Class I Areas

The United States Environmental Protection Agency has defined three classes to identify local land use goals. Class I is the most protected and thus allows only a small degree of air quality deterioration. The nearest Class I area to the Michoud facility is the Breton National Wildlife Area (BNWA). The BNWA is more than 70 km to the east-southeast of the Michoud facility. Since the air quality impact within the vicinity of the facility is insignificant, any possible air quality impacts within the BNWA are too small to calculate.

I.B. By which of the following potential pathways could releases of hazardous materials from the proposed facility endanger local residents or other living organisms (i.e. air, water, soil, food)?

Storage and use of hazardous materials at the Michoud Plant will continue to be minimal. Proper contaminant and material management techniques are employed to minimize the possibility of release.

I.C. What is the likelihood or risk potential of such releases?

Accidental releases are avoided to the maximum extent possible and this will continue upon project completion. The Michoud Plant utilizes inherently safer processes meaning that usage and storage of chemicals subject to Section 112(r) of the Clean Air Act is designed in a manner that minimizes the potential for accidental releases.

The Michoud Plant utilizes a highly trained and dedicated staff of operators. Operations, maintenance and support personnel are thoroughly trained and periodically tested in the proper use and operation of appropriate equipment and are familiar with the potential hazards of operating the Michoud Plant.

The combination of properly designed facilities and thoroughly trained personnel accomplishes the goal of minimizing the potential for accidental releases.

Finally, No.6 fuel oil, which is presently used as an alternate fuel, will no longer be used in the unit to be repowered. To the extent that the project reduces the use of fuel oil at Little Gypsy, the risk associated with a fuel oil release will also be reduced.

I.D. What are the real adverse environmental impacts of the permittee's proposed facility?

I.D.1. Short-Term Effects - Land area taken out of system

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Land use compatibility will not be compromised. The proposed project will not result in operations that are dissimilar to current operations and will occur within the existing plant fenceline.

I.D.2. Long-Term Effect

There are no long-term adverse impacts anticipated on environmentally sensitive areas. The proposed project will occur within the existing plant fenceline.

I.E. CONCLUSION

The potential and real adverse environmental effects of the proposed project at the Michoud Plant have been avoided to the maximum extent possible. Stringent emission controls, design standards, construction practices and operating philosophy assure that the proposed project at the Michoud Plant will not present any adverse impacts to the environment or the community within which it will operate.

II. Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Yes. The social and economic benefits of the proposed project greatly outweigh its environmental impact. As discussed above, the Michoud repowering project will not have an adverse impact on the environment but it will provide a vital capacity addition to the electric power generation fleet in the Greater New Orleans area. The new generating units will be located in Orleans Parish on property that is currently being used for power generation. The facility is subject to strict requirements to control wastewater and air emissions.

The project proposed at this facility has significant social and economic benefits. The text below provides a summary of the anticipated benefits.

II.A. How was it determined that the facility was needed?

Utility system planners have been monitoring the growth of the open access energy and capacity market in this region of the United States. Demand within this region has grown to a point where existing capacity reserves are in danger of being no longer adequate to meet the peak demand for capacity. In the summer of 1999, this resulted in the rolling blackouts experienced in Louisiana and elsewhere in the Entergy system. This problem will continue to worsen if additional generating capacity is not added in the New Orleans area. From a regional perspective the Southwest Power Pool (SPP) recognizes the problem of the power shortage situation four years ago and since then no new electric utility power generation capacity has

been built in the area. In its monthly bulletin of May, 1998, the SPP mentioned grave concerns about the lack of generation capacity and the lack of physical construction of new facilities within the pool. This problem is now particularly acute in the New Orleans area.

In March of 2002, Entergy filed a Long Term Resource Plan with the Louisiana Public Service Commission that identified a current System generating resource shortfall of close to 3,000 megawatts that is expected to grow larger over time. In addition to identifying the shortfall, Entergy identified that the initial preferred long-term self-build solution to meeting this shortfall was the repowering of some of Entergy's existing generating fleet.

In addition to the existing resource deficit, Entergy's aging fleet in the area is technologically inferior, and has lower efficiency and reliability and higher emission rates than newer units. Repowering is an economically preferable means of meeting this capacity shortfall while also addressing reliability, efficiency and environmental needs. After conducting a comprehensive study of repowering, involving consultants and including information from manufacturers, the utility industry, industry support and research organizations and company experts, the company determined that: 1) only some units are technically feasible repowering candidates, and 2) capacity additions in transmission-constrained area locations would provide the most value. An economic evaluation of the feasible units indicated that Michoud Unit 2 was the most viable repowering candidate based on its location, efficiency potential, age, size and potential environmental benefits.

II.B. What will be the positive economic effects on the local community?

II.B.1. Economic Benefits

The facility provides important economic and social benefits to Orleans Parish and the State of Louisiana. Although the proposed project will not result in additional long-term employment opportunities at Michoud Plant, the construction of the proposed project will create short-term jobs, additional earnings of households, and rising business activity in the immediate surrounding area and throughout the Louisiana economy.

Approximately $200 million will be spent on construction of the facility, which will result in 30 – 70 (during peak demand) direct and indirect construction jobs. This will result in increased business activity associated with the construction, as measured by sales, and personal earnings.

II.B.2. What is the expected tax base and who will receive benefits?

The Michoud Plant currently generates sales tax and property tax revenues for the local and state economies. Annual taxes levied on the land are paid to the Orleans Parish Tax Collector.

The majority of local sales/use taxes are dedicated to schools and general obligation bonds. State and local sales/use taxes paid on taxable purchases used in the ongoing operations of the facility are paid to the State of Louisiana and the Orleans Parish taxing authorities.

II.B.3. Social Benefits

Entergy strives to be a good corporate citizen involved in employee/community partnerships in Orleans Parish and surrounding communities. The Entergy New Orleans Michoud Plant will continue to buy goods and services locally and hire locally. Ongoing employment opportunities are provided to all aspects of the Louisiana work force. As a result, there is a net social benefit to the community in and around the Michoud Plant.

II.C. What will be the potential negative economic effects on the local community?

II.C.1. What are the possible effects on property values?

The Michoud Plant is located on property that is currently used for power generation and is zoned for industrial purposes. Since the proposed project will not change the current status as industrial use, the addition of the proposed project will not adversely affect neighboring property values.

II.C.2. Will the public cost rise for police protection, fire protection, medical facilities, schools, and/or roads?

No. The level of services for police protection, fire protection, medical facilities, and schools are not affected by the addition of the proposed project to the existing Michoud Plant.

II.C.3. Does the prospective site have the potential for precluding economic development of the area by business or industries because of risk associated with establishing such operations adjacent to the proposed facility?

The proposed project will be located at the existing Michoud Plant. The revisions to the equipment as a result of the proposed project will not hurt the potential for economic development in the area. In fact by providing reliable, efficiently produced electric power, the project will enhance economic development potential.

II.D. What mode of transportation will be used for the site?

The current mode of transportation for raw materials and products at Michoud Plant is via pipelines and transmission lines. The proposed project will not result in a change to the current mode of transportation at the site.

II.E. What are the long-term expectations of the proposed site?

The Michoud facility is expected to continue to supply low-cost power to the area for at least 20-30 years. To date electric power has been produced on this site for over 40 years.

III. Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits?

No. While there are several alternatives to the Michoud repowering project, this is the best choice when considering both the electric customers and the environment. Even if Entergy's evaluation had indicated a greater economic benefit from other alternatives, those alternatives would not offer greater environmental protection than the repowering project because the ultimate source of the required energy would most likely still have been a fossil fuel fired generator. Because the technological basis for the repowering project represents the current state of the art with regard to both operational and environmental performance, the emissions from the alternatives would likely be as high or higher.

The proposed configuration of CTG/HRSG's and Wet Surface Air Coolers as proposed will utilize commercially proven technologies. This technology is successfully utilized in other plants to safely produce steam and electricity in an environmentally sound manner.

III.A. The company's technology and processes are commercially proven to be reliable, safe, and environmentally superior to other possible technologies and processes.

The natural gas-fired combined cycle combustion turbine/HRSG configuration provides the most economically feasible and environmentally benign option for new electric power generation especially when an older, less efficient utility boiler needs replacement.

III.B. The configuration of the site is beneficial.

The proposed re-powering project is to take place at an existing plant site. The project was conceived as a result of market demand for low-cost power and steam. Required natural gas, abundant water supply, and electrical transmission lines are

existing and readily available at this location. This is also an ideal location to facilitate raw materials, utilities, and product transfers between facilities with minimal potential exposure to the public.

Michoud Unit 2 was built with the ability to burn No.6 fuel oil. The combined cycle units that will replace Unit 2 will use only clean burning natural gas.

III.C. Describe the reliability of technology chosen

The proposed configuration of CTG/HRSG's and Wet Surface Air Coolers as proposed will utilize commercially proven technologies. This technology is successfully utilized in other plants to safely produce steam and electricity in an environmentally sound manner.

III.D. Describe the sequence of technology used from arrival of wastes to the end process at the facility (flow chart).

Not applicable.

III.E. Will this facility replace an out dated/worse polluting one?

Yes. The repowering project will replace a boiler which commenced operation in 1963. In addition, the existing Unit 2 boiler has the capability to burn No.6 fuel oil. The re-powered units will use only clean burning natural gas.

F. What consumer products are generating the waste to be disposed?

The Michoud Plant will provide electrical power. No other products are generated by this facility.

IV. Are there alternative sites which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?

No. There are no alternative sites which would offer more protection to the environment than the proposed site for supplying electricity without unduly curtailing non-environmental benefits. This is a re-powering project at an existing plant comprising an upgrade to more efficient technologies.

IV.A. Why was this site chosen?

This site was selected for its proximity to the electric load, its available existing infrastructure, and for the resulting locational reliability and economic benefits. The location is also within an existing industrial economic development district, and was identified as the most viable site for repowering. After conducting a comprehensive study of repowering, involving consultants and including information from manufacturers, the

utility industry, industry support and research organizations and company experts, the company determined that: 1) only some units are technically feasible repowering candidates, and 2) capacity additions in transmission-constrained area locations would provide the most value.

For a "green-field" site, several years' lead-time would be needed to secure land, permits, and easements, and to construct the plant and the new electrical transmission system that would be needed to connect it to the Entergy electrical system. The lowest cost type of green-field plant would also be comprised of gas-fired combined cycle units.

IV.B. Is the chosen site in or near environmentally sensitive areas?

IV.B.1. Wetlands/Estuaries

Wetlands are near the project location. However, no impacts are expected to result from water discharges. The facility will continue to be fully subject to an NPDES permit. PSD modeling results show that impacts of air emissions from the repowering project will be minimal off-site.

IV.B.2. Sensitive Wildlife and/or Habitat

The Michoud Electric Generating Plant is an existing facility and the repowering project will not have an impact on any sensitive wildlife and/or habitat.

IV.B.3. Archaeological and Historic Resources

The Michoud Plant is an existing facility. The repowering project will be built on developed property and will not have an impact on historical, culturally significant, or archaeological sites in the nearby vicinity of the plant.

IV.C. What is the zoning and existing land use of the prospective site and nearby area?

The Michoud Electric Generating Plant, located in Orleans Parish, is currently zoned industrial The adjacent properties are zoned industrial and Open Land.

Orleans Parish is a predominantly urban parish that is situated between the Mississippi River and the Lake Pontchatrain. The area around 3601 Paris Road, however is generally industrial or lightly developed.

IV.D. Is the site flood prone?

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IV.D.1. 100-Year Flood Plain

The facility is located in New Orleans which is potentially subject to flooding during heavy rain events such as hurricanes, however certain parts of the city are more elevated and therefore less prone to flooding problems. The Michoud Plant has an elevation of 4.6 feet. Furthermore, the foundation on which the combined cycle will be built will be 1.5 feet above grade.

IV.D.2. Shoreline

The site is located inside of the legally defined Coastal Zone Boundary. The site will exhibit no direct effect on any regulated shoreline within the Coastal Zone.

IV.E. Is the Groundwater protected?

IV.E.1. Groundwater Impacts Will Be Avoided

No land-based treatment or disposal of solid or liquid waste is located or planned for at this facility. The soils in the vicinity of the plant are dominated by the deposition of the sediments from the Mississippi River. The horizontal groundwater movement is very slow in this area. Entergy operates the power plant facility in accordance with good engineering practices. These practices ensure systems to provide maximum safeguards for the protection of the groundwater and surrounding environment.

IV.E.2. Aquifer Recharge Zones

The rate of groundwater movement in the area is relatively low due to low permeability and hydraulic gradients. Horizontal groundwater velocities in the shallow permeable zones are typically only a few feet per year.

Entergy recognizes that even shallow, surface groundwater must be protected in this area, but activities at the site are not likely to pose any threat to groundwater. No land disposal operations are being considered for this site. Adherence to Louisiana's Groundwater Protection Standards reduces the potential for groundwater contamination.

IV.F. Does prospective site pose potential health risk as defined by proximity to:

IV.F.1. Prime Agricultural Areas

The proposed project is within the fenceline of an existing electric generating plant. As a result, the additions to the plant will cause no impact to agricultural production in the area.

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IV.F.2. Residential Areas, Schools, Hospitals, Etc.

The Michoud Electric Generating Plant is an existing facility. There are no nearby residential areas.

The topographic map further illustrates that there are no schools, hospitals, or other public places in the vicinity of the plant site.

IV.G. Is the air quality protected?

Entergy meets or exceeds all applicable state and federal emission standards, including ambient standards designed to protect human health and welfare with an adequate margin of safety.

IV.G.1. Is the site within an ozone non-attainment area?

No. Orleans Parish is classified as an ozone attainment area.

IV.G.2. What contaminants are likely to be generated at the site?

The Michoud Plant will generate air emissions including particulates, nitrogen oxides, carbon monoxide, sulfur dioxide and VOCs. Emissions are primarily due to combustion sources. The site is classified as a major source under federal hazardous air pollutant (HAP) rules, due to HAPs generated from incomplete combustion of virgin fossil fuels.

IV.G.3. What protection is afforded from each contaminant generated by the site?

Air emissions from the site are stringently controlled as required by applicable state and federal air quality regulations. Best Available Control Technology will be utilized for the proposed project and will provide exceptional protection to the environment. Modeling shows all predicted emissions of PSD regulated contaminants to have minimal impacts, safely below significance levels.

IV.G.4. What plans are implemented for odor control?

There will continue to be no emissions of an odorous nature at the Michoud Plant.

IV.G.5. Who will be affected by emissions?

Air emissions from the Michoud repowering project are stringently controlled by use of Best Available Control Technology. The air application

includes a comprehensive review of the technologies. Therefore, no adverse affect is expected from the facility air emissions. The facility will not cause any ambient standard to be exceeded.

IV.G.6. Describe the control of vapors at various stages of the process?

Emissions from each point source are identified in the Application for Approval of Emissions and in the Emission Inventory Questionnaire. Emissions will be controlled through the use of Best Available Control Technology as required by the PSD rules. For a thorough discussion of selection of BACT, see Section 3.0 of the air permit application.

IV.H. Have physical site characteristics been studied; what has been done in terms of geotechnical investigations?

Physical site characteristics are available since the site is an existing electrical generation plant. Entergy samples semi-annually from six wells at the site. All of the wells have shown groundwater at Michoud to be clean. The site has been assessed and approved in accordance with the LDEQ's Groundwater Certification Program.

V. Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

No. There are no mitigating measures that would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits. This project will be permitted under PSD air permitting requirements for Best Available Control Technology (BACT). BACT requires that the best available emission control strategy be used for all new major projects. The Michoud 2 Repowering project will be undertaken with an excellent overall emissions impact on the area (see the emissions chart above in I.D. The replacement of a unit capable of burning No.6 fuel oil with a CTG/HRSG pair only capable of using clean burning natural gas is an added benefit.

V.A. Is this facility part of a master plan to provide waste management?

No. Michoud is not part of a plan to provide waste management.

V.B. Does this facility fit into an integrated waste management system?

No. Michoud is not part of an integrated waste management system.

V.C. Can waste be disposed in another fashion (way)?

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Management and employees are committed to making waste minimization an integral part of their daily activities. This commitment will continue at Michoud over the life of the facility.

At the Michoud Plant, waste minimization is a responsibility of every employee. Waste minimization activities are coordinated through environmental personnel and/or department supervisors.

The overall objective is to minimize waste generation to the maximum extent possible. Goals are to consistently attain conditionally exempt small quantity generator status as defined by the LDEQ, and significantly reduce non-hazardous waste generation.

V.D. What quality assurance control will be utilized to protect the environment?

Spill prevention plans are prepared to minimize or reduce the likelihood of spills occurring on the site. In addition, a VOC Housekeeping Plan will continue to be in force at the facility. The facility will also continue to be required to meet all air and water permit limitations.

V.E. Innovative techniques used to control release of waste or waste constituents into the environment.

The low emissions and high efficiency of the turbine technology makes it one of the best technologies currently available. This technology emits very low emission levels and very little waste is generated from this process in the first place.

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Exhibit 2. Louisiana Department of Environmental Quality, Map of Michoud Site and Surrounding Area

(Public Notice for the Michoud Electric Generating Plant – Entergy New Orleans, Inc.: Public Hearing and Request for Public Comments on the Proposed Part 70 Air Operating Permit Renewal & Minor Modification/Acid Rain Permit Renewal & Modification, January 2017, Permit No. 2140-000140-V5, EDMS Doc. No. 10462560)

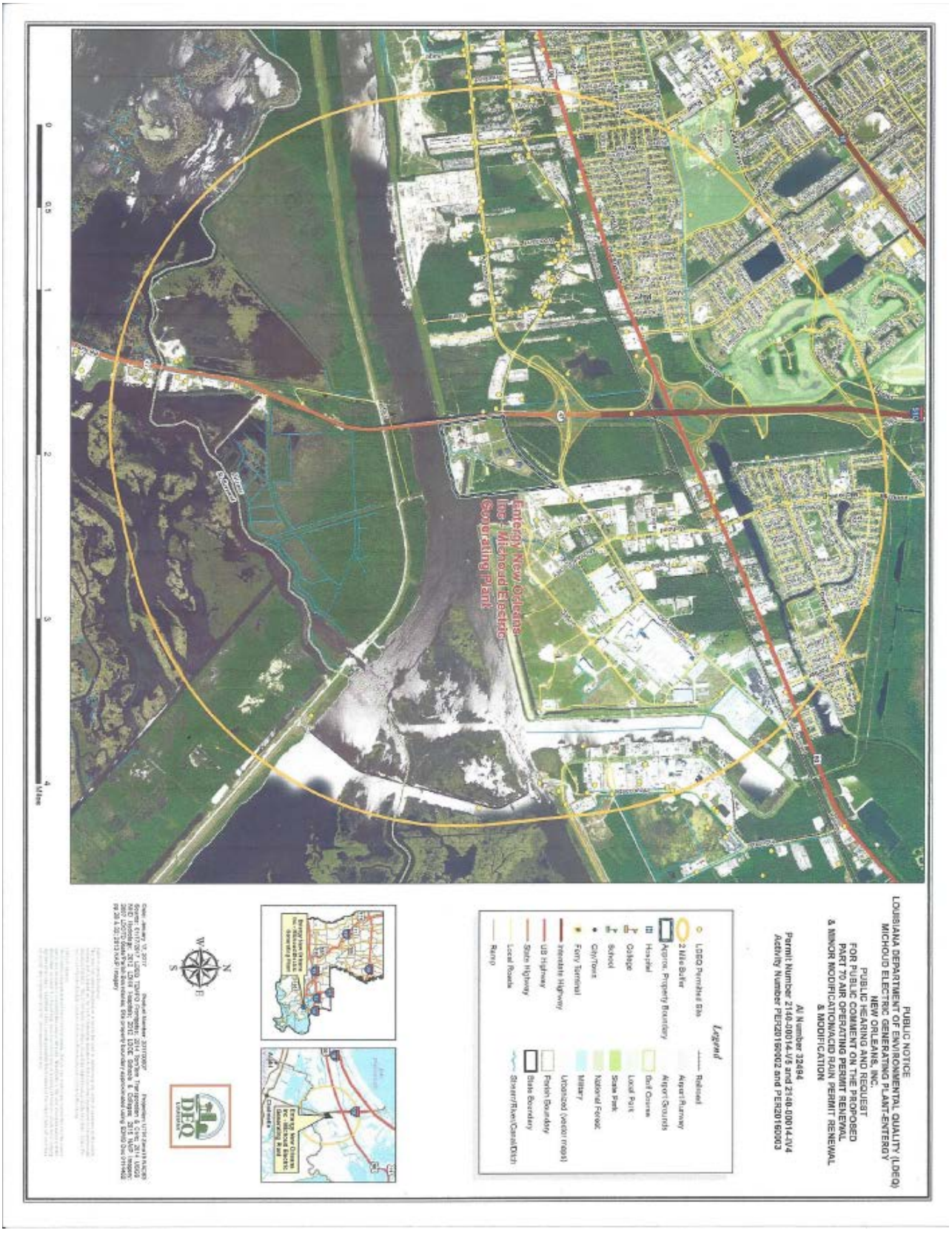
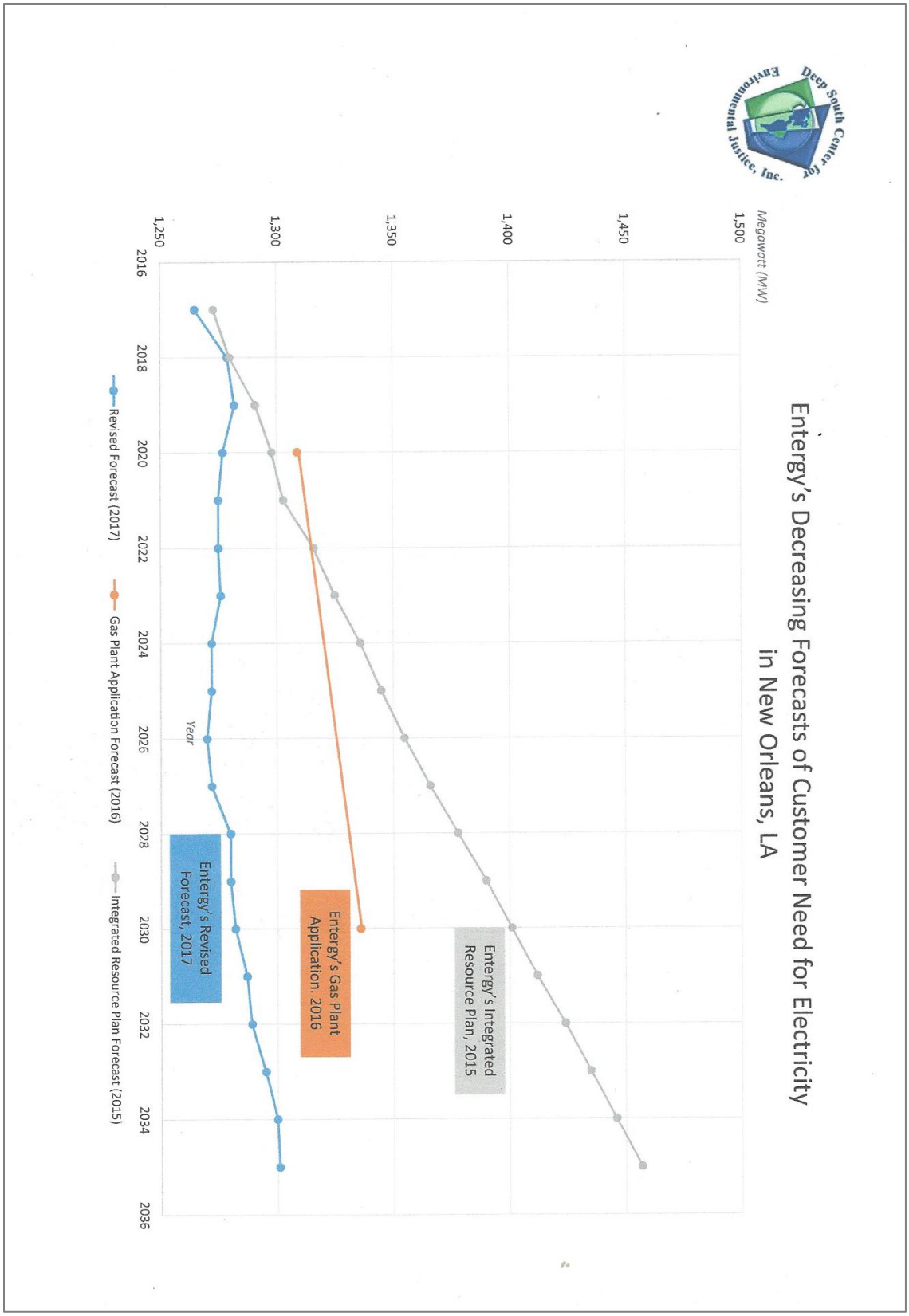

PUBLIC NOTICE
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY (LDEQ)
MICHOUD ELECTRIC GENERATING PLANT-ENTERGY
NEW ORLEANS, INC.
PUBLIC HEARING AND REQUEST
FOR PUBLIC COMMENT ON THE PROPOSED
PART 70 AIR OPERATING PERMIT RENEWAL
& MINOR MODIFICATION/ACID RAIN PERMIT RENEWAL
& MODIFICATION
AI Number 32494
Permit Number 2140-00014-V5 and 2140-00014-IV4
Activity Number PER20160002 and PER20160003
Entergy New Orleans
Inc. Michoud Electric
Generating Plant
Legend
LDEQ Permitted Site
2 Mile Buffer
Approx. Property Boundary
Hospital
College
School
City/Town
Ferry Terminal
Interstate Highway
US Highway
State Highway
Local Roads
Ramp
Railroad
Airport Runway
Airport Grounds
Golf Course
Local Park
State Park
National Forest
Military
Unionized (water maps)
Parish Boundary
State Boundary
Stream/River/Canal/Ditch
N
S
E
W
DEQ
LOUISIANA

Exhibit 3. Deep South Center for Environmental Justice, Entergy's Decreasing Forecasts of Customer Need for Electricity in New Orleans, LA


Entergy's Decreasing Forecasts of Customer Need for Electricity in New Orleans, LA
Megawatt (MW)
1,500
1,450
1,400
1,350
1,300
1,250
2016
2018
2020
2022
2024
2026
2028
2030
2032
2034
2036
Year
Entergy's Integrated Resource Plan, 2015
Entergy's Gas Plant Application, 2016
Entergy's Revised Forecast, 2017
Revised Forecast (2017)
Gas Plant Application Forecast (2016)
Integrated Resource Plan Forecast (2015)